Software Requirements Specification

For

Digitalized System to Book an Ambulance

Version 1.0 approved

Prepared by Debasrito Lahiri

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Revision History

Name	Date	Version
First Edition	22/07/2019	1.0

1. Introduction

1.1 Purpose

The system will serve the purpose of handling an ambulance for a patient in a digitalized way. The core purpose of the system will be to book an ambulance, pick up the patient and get the patient to a hospital. Other additional purposes of the system will be:

a) *To make the payments digitalized and transparent*
b) *To make the whole of the transportation for both the ambulance and the patient as quick, safe and smooth as possible.*
c) *To make more ambulances available to patients and increase coverage area of ambulances.*

1.2 Document Conventions

i.) Major headings are written in bold, Times New Roman font with size 18.
ii.) Minor headings are written in bold, Times New Roman font with size 18.
iii.) Sub contents are written in italics, Arial font with size 11.
iv.) Numbering is done to show the flow of the documentation.

1.3 Intended Audience and Reading Suggestions

This document is intended for developers, project managers, testers and debuggers of this system. Marketing staff and users may refer to this documentation for additional information.

1.4 Product Scope

The major problem the world faces when it comes to ambulance booking is the method itself. At present most of the bookings made in India are done manually through a telephone call. The time taken to make such booking is really high as the ambulances have to know about the location, type of ambulance and the floors to be climbed separately. Then comes the problem of traffic. We often see ambulances stuck in traffic because of a stop signal at a crossing. At times the police intervenes, but at times it becomes really hard for them to know about a stuck ambulance because of the distance of it from the signal. Our product will mainly aim at these two problems.

a) *Since the location acquiring will be automatic booking won't take time.*
b) *Due to google maps integration the routes to be followed for picking up the patient and getting to the hospital will be as quick and smooth as possible. Traffic problems will be reduced.*

2. Overall Description

2.1 Product Perspective

The product will be a system comprising of individual backend and frontend components. Mainly there will be 3 components:

a) *The patient side app*
b) *The driver side app*
c) *The database in the cloud*

2.2 Product Functions

a) *The patient will be call an ambulance at any time by providing the mobile number and name. The app will retrieve the location automatically.*
b) *The nearest driver to that location will be notified and a route will be shown to the driver to reach the patient.*
c) *Upon picking up the patient the driver or the patient can set the destination hospital.*
d) *Upon selecting a hospital, the phone number of that hospital and a route to that hospital will be shown.*
e) *Upon getting the patient to that hospital, the driver can finish this trip.*
f) *The driver will get notified when another trip comes up.*
g) *Otherwise the driver may logout and not accept further trips.*
h) *However, logging out will be disabled while the driver is on a trip.*

2.3 User Classes and Characteristics

This product is intended for patients who need ambulance, and ambulance drivers alike. The major requirement of this product is an android device with a net connection and location sensors.

2.4 Design and Operating Environment

The product will work in android devices with V4.0 and up. The device must also have an active internet connection and a location provider (GPS).

2.5 Implementation Constraints

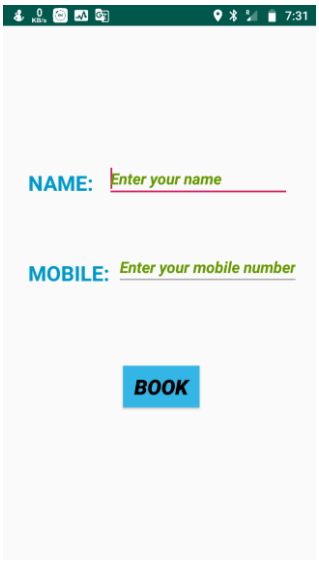
The role of the product is to make a bridge between patients and ambulances and make the whole process easier. However, the availability of ambulances is not guaranteed as drivers may logout of the app at their wish when they aren't engaged in a trip.

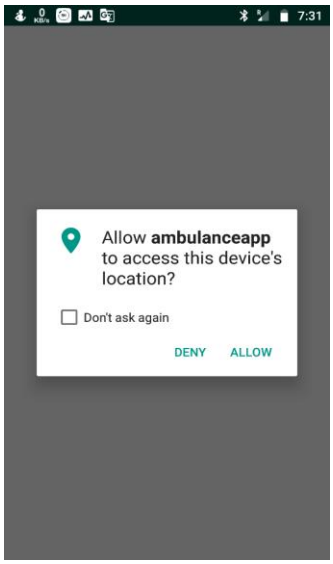
2.6 Assumptions and Dependencies

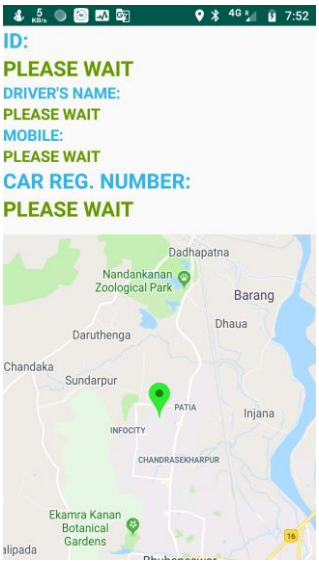
Our product depends on certain services provided by Google such as maps and firebase. If such services are affected in any way (like a server downtime or something similar) we can't guarantee proper operation of our product.

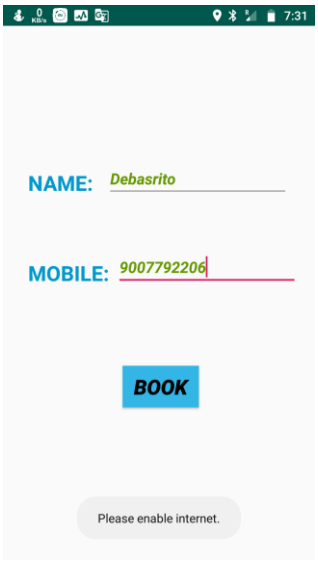
3. External Interface Requirements

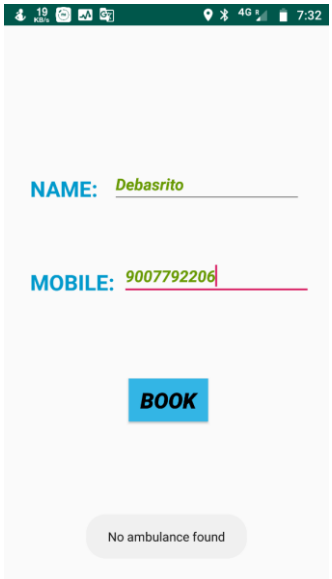
3.1 User Interfaces

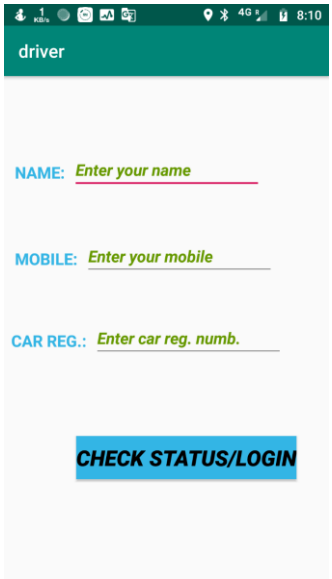


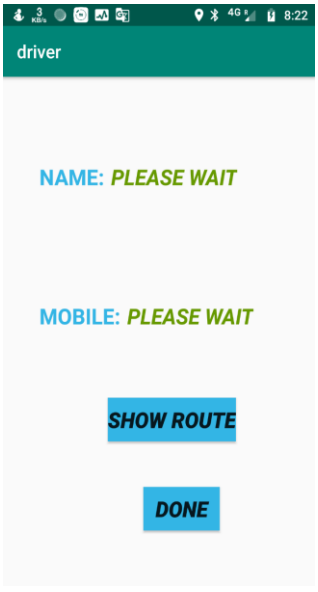












The above screenshots show the various features of the driver and patient side app (like booking screen, internet permission asking, notification for turning on internet, details view, driver side login screen etc.). The above screens are subject to change before the final build.

3.2 Hardware Interfaces

Our product would make use of location provider and internet services. Such services would use a GPS communication device and the network module of the device.

3.3 Software Interfaces

Our product uses certain services. They are:

a) *Google play services*
b) *Firebase database*
c) *Google maps API*
d) *Fine location of the device*
e) *Network state information and access to the internet*
f) *Google maps software*

3.4 Communications Interfaces

The network connection to the firebase and other services are through HTTPS connections and are secured from server side through Google's enforcement rules.

4. System Features

4.1 Booking an ambulance

4.1.1 Description and Priority

This is the main feature of the system. A patient will be able to book an ambulance through this app.

4.1.2 Stimulus/Response Sequences

The user has to provide a name and mobile number to book the cab. Upon successful booking, the details of the driver and the ambulance will be provided and the location of the ambulance will be shown in a map.

4.1.3 Functional Requirements

REQ-1: An active network connection
REQ-2: A GPS device or location sensing device.

4.2 Providing the details of patient to the driver

4.2.1 Description and Priority

The driver is provided the location, name and mobile number of the patient. Also, a route is provided to reach the patient.

4.2.2 Stimulus/Response Sequences

The user has to login to the app using his name, mobile number and car registration number. Upon login, the app will continuously search for a patient and once found it will notify the driver.

4.2.3 Functional Requirements

REQ-1: An active network connection
REQ-2: A GPS device or location sensing device.

4.3 Showing routes

4.3.1 Description and Priority

Upon booking, the driver will be shown a route to the patient. Upon picking up the patient, the app will find nearest hospital and provide route to these hospitals.

4.3.2 Stimulus/Response Sequences

Upon receiving a pickup request the driver has to select the show route button to see a route to the patient. Upon picking up the patient, the driver will be shown the route to the nearest hospital. However, the hospital can be changed from the google maps.

4.3.3 Functional Requirements

REQ-1: An active network connection
REQ-2: A GPS device or location sensing device.
REQ-3: Google maps software in the device.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

Our product uses a real time database system facilitated through firebase platform of Google. As such, all the database transactions happen in real time.

5.2 Safety Requirements

Misuse of the app to make fake reservations may hamper the services provided by the app. A user must make sure that they are ready to get up in the ambulance as soon as it arrives. Any delay, from both the patient and driver side can hamper the proper operation of the whole system.

5.3 Security Requirements

To use this app users have to consent to allow collection of location data and personal details like name, mobile number, car registration number etc. Also, such data will be stored in a database and may be continuously tracked for the proper performance of the system.

5.4 Software Quality Attributes

The system will try to connect the patients to an ambulance. However, in the event of no ambulance being available, the system cannot be held responsible. Also, the system cannot be held responsible for any loss due to any fault from any user. The system is only responsible for connecting patients and ambulances only. It cannot be held responsible for anything else.

5.5 Business Rules

The system can be used by both drivers and patients alike. However separate apps are developed for both the sides. As such, the driver app will work only if the driver has an ambulance along with a registration number for it. This is enforced by asking the registration number for the vehicle. Also, drivers will be shown the nearest hospital available. But, if necessary, the driver can change the hospital to a different one upon patient's request.

6. Other Requirements

This system uses firebase real time database and google play services.